

DEVICE AND METHOD FOR REMOVING PESTS FROM A SURFACE

CROSS-REFERENCE TO RELATED APPLICATION(S)

This application claims priority from provisional application 60/442,318, which was filed on January 24, 2003.

## BACKGROUND OF THE INVENTION

This invention generally relates to a device and method for removing pests from a surface. In particular, this invention relates to an adhesive sheet that is positioned over a pest to trap and remove the pest from the surface.

5 Pests like spiders, small insects, and rodents can spread disease. Ticks in particular may carry Lyme disease, and when they burrow into the host's skin may infect the host. To prevent the transmittal of disease or irritation which may occur from having an insect on the host's skin, the insect must be removed.

10 Tweezers and forceps have been used to remove burrowed insects from the skin of the host. A problem with using this type of removal device is that if the insect has attached itself to the host, then a portion of the insect may break off and remain at the burrow site when removing the insect. Materials remaining in the skin can lead to discomfort and infection.

15 Adhesive tapes and rollers have been used as a method of removing insects from a surface like skin. A problem with using adhesive tapes as a removal device is that once the tape has been applied to the surface, the tape is difficult to remove. The tape is flat against the surface without an exposed edge for grabbing.

20 A problem with using adhesive rollers as a removal device is that the rigid roller may crush the insect. Another problem is that the roller passes over the insect too quickly. The roller pulls the insect off the surface without irritating the insect. Irritating the insect first causes it to unhook or release from the surface. Removing the insect prior to it releasing properly may result in a portion of the insect breaking off and remaining at the burrow site.

25 Many pests can be difficult to catch because they move too quickly or can get into areas that are difficult to reach. Devices like fly swatters can be used to strike and kill pests, but once the pest is struck, the force of the strike may cause the pest to be lost.

There is a need for a device to safely and effectively capture and immobilize pests while securing the pest to the capturing surface and where the capturing device can be easily manipulated by a user. There is a need for a device to cause a burrowed pest to release from the surface so that the pest can be entirely removed and examined for disease potential.

#### BRIEF SUMMARY OF THE INVENTION

The present invention provides a pest removal device for removing a pest from a surface. The pest removal device comprises an engagement side covered by an adhesive layer, a backing side positioned opposite the engagement side, and a single release tab covered with a non-adhesive layer extending from the pest removal device for removing the engagement side from the surface.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view of one embodiment of a pest removal device.

5 FIG. 2 is a perspective view of a plurality of pest removal devices.

FIG. 3 is a perspective view of a spool of pest removal devices and a dispenser.

FIG. 4 is a perspective view of a pest removal device being applied over a pest.

FIG. 5 is a perspective view of a folded pest removal device.

10 FIG. 6 is a perspective view of a pest removal device attached to an extension tool.

While the above-identified drawings and figures set forth one embodiment of the invention, other embodiments are also contemplated, as noted 15 in the discussion. In all cases, this disclosure presents the invention by way of representation and not limitation. It should be understood that numerous other modifications and embodiments can be devised by those skilled in the art which fall within the scope and spirit of the principles of this invention. The figures may not be drawn to scale. Like reference numbers have been used throughout the figures 20 to denote like parts.

## DETAILED DESCRIPTION

FIG. 1 is an exploded perspective view of one embodiment of a pest removal device. The pest removal device 200 has a main body 202 with a main body length 204, width 206, and perimeter 208. In this embodiment the length 204 and width 206 are equal and define a diameter of a circular perimeter 208. The main body may be rigid or flexible. In one embodiment, the main body is constructed of a flexible, resilient foam.

The main body 202 has a backing side 210 and an engagement side 212 that is opposite the backing side 210. The engagement side 212 is coated with an adhesive layer 214. In this embodiment, the adhesive layer 214 covers the entire engagement side 212. The adhesive layer 214 may be penetrated or encapsulated with a pesticide, antiseptic, or medication such as benadryl. In some embodiments, the backing side 210 may be covered with an adhesive layer as well to create a pest removal device with tackiness on both the engagement side 212 and the backing side 210. (See FIG. 6). The pest removal device 200 can be removably stored on a storage liner 300.

The pest removal device 200 is shown to be generally flat and circular shaped but may be of any size or shape that is appropriate for the particular application. In one embodiment, the pest removal device 200 that would be appropriate for use in removing small pests like insects, ticks, and spiders has a diameter of one inch.

To assist in removing the pest removal device 200 from the storage liner 300 or a contact surface is a release tab 216. The release tab 216 has a release tab length 218 that extends parallel to the main body length 204, and a width 220 that extends parallel to the main body width 206. The release tab 216 in this embodiment has a length 218 and width 220 that are equal and define a radius of a partial circle perimeter 222. The release tab length 218 is less than the main body length 204 and the release tab width 220 is less than the main body width 206.

Therefore, the release tab 216 is a projection that has a smaller size than the main body size. The release tab 216 in FIG. 1 extends from the main body perimeter 208. The release tab 216 is covered with a tab liner 224, so that the adhesive layer 214 on the release tab 216 does not stick to a user's finger during operation. The release tab 216 may be of a rigid or flexible material and be of any size or shape that is appropriate for the particular application.

FIG. 2 is a perspective view of a plurality of pest removal devices. A plurality of pest removal devices 200 are attached to a storing liner 300 that in this embodiment is a rectangular sheet. The adhesive layer 214 of the pest removal device 200 attaches to the storing liner 300. The release tab 216 being covered with a tab liner 224 is not attached to the storing liner 300 so that the release tab 216 can be easily grabbed to remove the pest removal device 200. The storing liner 300 may have a glossy surface or be coated with a release agent so that the adhesive layer 214 of the pest removal device 200 can be easily removed without damaging the tackiness of the adhesive layer 214 of pest removal device 200 or damaging the storing liner 300. The storing liner 300 may be any size or shape so as to effectively store a plurality of pest removal devices 200.

FIG. 3 is a perspective view of a spool of pest removal devices on a dispenser. A plurality of pest removal devices 200 are arranged in a linear fashion on a storing liner 300. The adhesive layer 214 of the pest removal device engages with the surface of the storing liner 300. The storing liner 300 is then spooled and placed in a dispenser 404. The dispenser 404 may have a serrated edge 406 for tearing the storing liner 300 so that the pest removal devices 200 attached to the storing liner 300 can be removed.

An exemplary size of a pest removal devices 200 useful in trapping small insects, spiders, and other small pests has a main body 202 with a diameter of one inch, a release tab 216 with a radius of 0.125 inches. When placed on the

sheet, the main bodies 202 are 0.250 inches apart and the release tabs 216 are 0.125 inches apart.

An exemplary material useful in making the pest removal device is a tape available from 3M Health Care of St. Paul, Minnesota as 3M 8791 Foam Medical Tape. For the tab liner 224, a polyester liner is available from Rayven, Inc. of St. Paul, Minnesota. Foam medical tape available from 3M is constructed of a polyvinyl chloride foam, coated on one side with a hypoallergenic pressure-sensitive acrylate adhesive and supplied on a paper liner. The foam tape, without the paper liner, has a caliper of approximately 22.5 mils. The foam tape has an adhesion to steel minimum of approximately 227g/25mm. The paper liner has a caliper of approximately 4 mils. The medical tape is transferred onto a finished product liner or storage liner 300. The finished product liner is coated with a release agent, such as silicone, so that the adhesive layer of the medical tape releases from the surface. The finished product liner can be a material such as a .78 pound liner with a caliper from 4.5 to 7 mils. The tab liner 224 covering the release tab 216 can be a polyester liner adhered to the adhesive layer of the medical tape having a caliper of approximately 1.5 mils. Other sizes and materials for construction of the pest removal devices are within the scope of this invention.

The pest removal devices 200 attached to a storing liner 300 may then be boxed or packaged in a plastic resealable container. The container can be easily stored in a camper, in a car, or in a kitchen drawer so that the pest removal devices 200 are easily accessible.

FIG. 4 is a perspective view of a pest removal device being applied over a pest. A user 226 holds the pest removal device 200 by holding the tab liner 224 of the release tab 216 and the backing side 210. The user 226 then positions the adhesive side 214 over the pest 228 (in this case a tick). The adhesive side 214 sticks to the pest 228 and a surrounding surface 230 on which the pest 228 is touching. The surrounding surface 230 may be human skin, animal skin, clothing,

a wall, or other type of surface pests dwell. If the adhesive side 214 is penetrated or imbedded with an antiseptic solution, the pest 228 may become irritated. This irritation may cause the pest 228 imbedded in the surrounding surface 230 to detach. Additionally, if the pest removal 200 device is constructed of a resilient 5 foam material, it compresses and surrounds the pest 228 thereby suffocating the pest 228 causing the pest to release from the surrounding surface 230. After a predetermined period of time, the user 226 pulls on the release tab 216 and removes the pest removal device 200 from the surrounding surface 230 with the pest attached to the device 200. To sufficiently irritate or suffocate the pest, the pest 10 removal device 200 should be positioned over the pest 228 for a sufficient amount of time. Generally, three to ten minutes is sufficient and up to thirty minutes for deeply imbedded pests. The pest removal device 200 is then removed. Because the pest 228 is attached to the adhesive side 214, the pest 228 is unable to escape. If the antiseptic is alcohol based, it also helps to clean a wound left by the pest 228 on the 15 surrounding surface 214.

FIG. 5 is a perspective view of a folded pest removal device 200. The pest removal device 200 with the pest 228 attached to the adhesive side 214 has been removed from the surface 230. The user 226 can fold the backing side 210 so that the pest 228 becomes trapped in the adhesive side 214. After the pest 228 is 20 trapped, the pest removal device 200 can be discarded or sent to a laboratory where the pest 228 can be analyzed for disease.

FIG. 6 is a perspective view of a pest removal device attached to an extension tool. In this embodiment, the pest removal device 200 has an adhesive layer 232 covering at least a portion of the backing side 210 as well as an adhesive 25 layer 214 on the engagement surface 212. The backing adhesive layer 232 allows the pest removal device 200 to be securely attached to a tool 700. The tool 700, such as a fly swatter, broom, or wooden pole can allow a user 226 to catch a pest 228 located out of the user's reach. The engagement surface 204 is exposed and is

the surface that traps the pest 228. To remove the pest removal device 200, the user 226 pulls on the release tab 216. In this embodiment, both sides of the release tab 216 would be covered with a tab liner 224.

The pest removal device can be used to remove a variety of pests  
5 from various surfaces. An appropriate sized device may be used to remove small and large insects, spiders, and rodents from humans, animals, or other various surfaces. The pest removal device is useful for removing imbedded ticks from skin of a human or animal. A large removal device may be used to remove a rodent caught in a trap so that the rodent can be captured without a user having to touch  
10 the rodent with his or her hands.

A pesticide, antiseptic, or odorous material may be incorporated into the adhesive layer to cause a burrowed pest to release from a surface or to kill or immobilize the pest prior to removal. For pests burrowed in a surface like skin, an antiseptic can be useful in assisting with cleaning the surface to prevent infection.

15 A pest removal device constructed of foam allows the user to press the pest removal device on the pest and the surrounding material. The foam is compressible so that when the user presses to enclose the surrounding surface, the pest is not necessarily crushed but the foam is depressed. This may prevent the transfer of fluids from the pest to the surrounding surface.

20 Although the present invention has been described with reference to preferred embodiments, workers skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention.